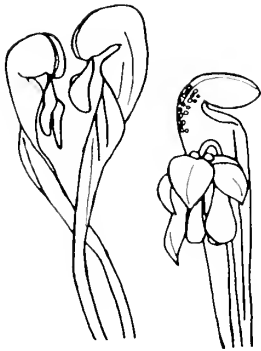


CARNIVOROUS PLANT NEWSLETTER

VOLUME 13, Number 1

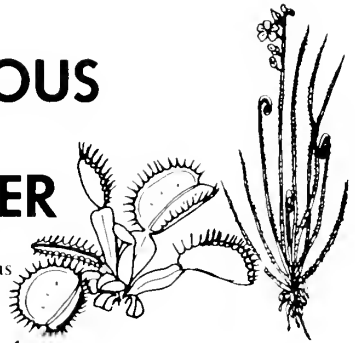
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CARNIVOROUS PLANT NEWSLETTER

Official Journal of the
International Carnivorous
Plant Society



Volume 13, Number 1
March 1984

On the covers: Front: Lower pitchers of *Nepenthes gymnamphora*. See article, page 10.

Back: Upper pitchers and scrambling vine of *Nepenthes tobaica*. See article, page 16.

Photos by Roger Shivas.

The co-editors of CPN would like everyone to pay particular attention to the following policies regarding your dues to the ICPS.

All correspondence regarding dues, address changes and missing issues should be sent to Mrs. Pat Hansen, 3321 Hamell Rd., Fullerton, CA 92635. DO NOT SEND TO THE CO-EDITORS. Checks for subscriptions and reprints should be made payable to CSUF FOUNDATION-ICPS.

All material for publication, comments and general correspondence about your plants, field trips or special noteworthy events relating to CP should be directed to one of the co-editors. We are interested in all news related to carnivorous plants and rely on the membership to supply us with this information so that we can share it with others.

Views expressed in this publication are those of the authors, not necessarily the editorial staff.

Copy deadline for the September issue is July 1, 1984.

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SEED BANK

Patrick Dwyer (St. Michael's Episcopal Church,
49 Killean Park, Albany, NY 12205)

To send seed: Please remove seed from the seed capsules and place it in small envelopes (preferably paper so that they dry out enough to prevent mold). Label with the origin and date of collection, including habitat if it is exotic. Fold the envelope once or twice before taping so that the seeds don't stick to the tape. After the seed is received it will be placed in smaller packets; donors will be informed of how many packets they have donated. A donation of 10-19 packets earns one free seed packet of comparable rarity, with one additional free packet for each additional 10 packets.

Do not ask to trade for seed from the bank. Everyone will have to buy all but the free packets.

To order seed: Please enclose payment. List the seeds desired and an equal number of substitutes in order of preference. If requested, Patrick will add any cultural instructions of which he is aware. Each issue of CPN will include an update of the inventory. Cost per packet: \$.75. (Number of packets is listed if less than 15 are available.)

Byblis liniflora *Darlingtonia californica*, *Dionaea muscipula*, *Drosera adelae* (3), *D. aliciae* (4), *D. auriculata*, *D. binata* (5), *D. burkeana* (5), *D. burmannii*, *D. capensis*, *D. capensis* (narrow), *D. capensis* (reg. & narrow mix), *D. capillaris*, *D. dielsiana* (10), *D. erythrorhiza* (3), *D. glanduligera* (5), *D. indica* (4), *D. indica* (red), (10), *D. intermedia*, *D. intermedia* "Roraima" (3), *D. menziesii*, *D. montana* (5), *D. natalensis* (5), *D. peltata*, *D. pulchella* (2), *D. pygmaea* (3), *D. ramellosa* (3), *D. rotundifolia*, *D. spathulata* (Kansai), *D. spath.* (Kanto), *D. spath.* (Tanega), *D. spath.* (white fl.), *D. whittakeri* (5), *Drosophyllum lusitanicum* (10), *Pinguicula alpina* (2), *P. corsica* (2), *P. lusitanica* (6), *Nepenthes khasiana*, *N. mirabilis*, *Sarracenia alata* (5), *S. flava*, *S. leucophylla*, *S. leucophylla* (red form) (10), *S. purpurea purpurea*, *S. × catesbaei*, *Utricularia lateriflora* (5), *U. uliginosa* (5).

*Our sincere thanks to the following people
who have donated seed to the seed bank:*

CPN DONORS

July 27, 1981 - Dec. 31, 1983

* - Overseas Donors

4877 Packets Donated by 94 Donors

*L. Butschi	400	P. Lieder	69
*T. Carow	385	*M. DePaz	65
*M. Studnicka	253	*H. Otani	65
M. Hommick	221	*R. Maulder	62
B. Carroll	215	I. Kocsis	60
D. Schnell	205	*R. Shivas	60
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*S. Olejnik	100	S. Albert	50
*K. Schoofs	95	C. Bramblett	50
J. Mazrimas	92	T. Fish	50
*G. Ashley	70	R. Franc	50

News and Views

GORDON CHEERS (P.O. Box 78, Diamond Creek, Victoria 3089, Australia) writes regarding the Victorian CP show: On the 29th of October, Australia had its biggest carnivorous plant show held in Victoria at the Botanical Gardens. A small group of enthusiasts organised the show in conjunction with the launching of my book (*See p. 23. Ed.*). All costs were borne by the publishers. Over 1500 people attended; many went away to have lunch in the surrounding park and came back to have a second look. An area was set aside

for a simulated peat garden and a terrarium display; prizes were awarded for the best plants. The Botanical Gardens were so impressed with the display that we were requested to run the show the following day for the Premier of the State.

At the show 150 individuals showed interest in joining a carnivorous plant society. (Since then 100 have become members.) By the end of the day all the exhibitors were exhausted and had lost their voices. At packing up time (7 p.m.), when asked if they would do it again, the

Seed Bank Donors - continued

*J. Haldi	30	D. Speirs	13
T. Johnson	30	M. Woodring	13
*P. Tsang	30	*A. Dunne	12
*I. Walters	46	*B. Johnson	12
*H. Kolvenbach	45	*L. Adney	10
*R. Kresanek	45	J. Banta	10
R. Chinnock	42	P. Dwyer	10
*A. Lowrie	40	*J. Eberbeck	10
*J. Marabini	40	*R. Fechner	10
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*R. Matthes	30	*M. Archer	8
*R. Riedl	30	E. Allen	7
B. Webber	30	J. DeKanel	7
*J. Kent	27	E. Junkel	7
*S. Hugentobler	26	W. Clemens	5
M. Nathanson	25	A. Finick	5
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*Kirstenbosch	20	M. Lang	4
*R. Lin	20	J. Allen	3
*R. & I. Lyle	20	D. Handley	3
*B. Pierson	20	*P. Temple	3
*R. Salters	20	J. Toner	3
*U. Siebers	20	G. Davis	2
G. Wong	20	E. Mar	2
C. Yax	20	M. Cheek	1
D. Butler	15	*P. Cotter	1
J. Comia	13	R. Perry	1
*P. Jame	13		

answer from all who attended was YES, but not for at least a year. Now that we are experienced show organisers, next year's will be bigger and better.



By the time this article goes to print we will have held our first meeting. I will inform you of the results in a few weeks.

*(Photos left and below:
Victorian CP show, sent by
Gordon Cheers*

RICKY MAULDER (112 Harbour View Rd., Tikirangi, AK7, New Zealand) writes: while on a holiday down the South Island, I looked extensively in swamps for CP. They were most common on the West Coast and mountain saddles. Sphagnum moss of very high quality is found growing like paddocks in Westland. One fellow had so many paddocks with "lawns" of sphagnum that he offered it freely since it was doomed to be bulldozed away to make grazing land for his horses.





D. arcturi, Lewis Pass, New Zealand

Photo by R. Maulder

However, with all this moss around, there is little CP around and I only could find *Drosera spatulata* and *D. arcturi*. The *D. arcturi* photo was taken in habitat during the early summer (mid-November) at Lewis Pass. The air and ground was cold which I would estimate to be around 10° C (50° F) or less and so the sphagnum moss here is slow growing. The sundews were growing at normal rate as I also found *D. arcturi* growing north of Nelson Lakes at a lower elevation and they were similar in size.

BILL NETHERBY (P.O. Box 1, Mt. Hermon, CA 95041) writes: I tried getting rid of sowbugs this last summer with diazinon granules (5%) sprinkled on my bog plants. The coarse sphagnum died in spots soon after. I assume the diazinon was the cause. I'm rethinking my pest control approaches now.

By the way, in the November, 1983: page 1150, *American Orchid Society Bulletin* is a full page "Letter to the Editor" by Dr. Rutkowski of E. & E. Plant Tissue Lab in

Trenton, N.J., re: benzyl aminopurine (BAP) used in mericlone phalaenopsis. It's had mixed reviews among growers, some claiming sports, chimeras, mutants, and death to parent plants carrying inflorescences BAP was applied to. Dr. Rutkowski says that very little trouble results when used below strengths of 0.1 mg./l. (or 1 part per ten million!) BAP is thought to be the active ingredient in "Keiki paste."

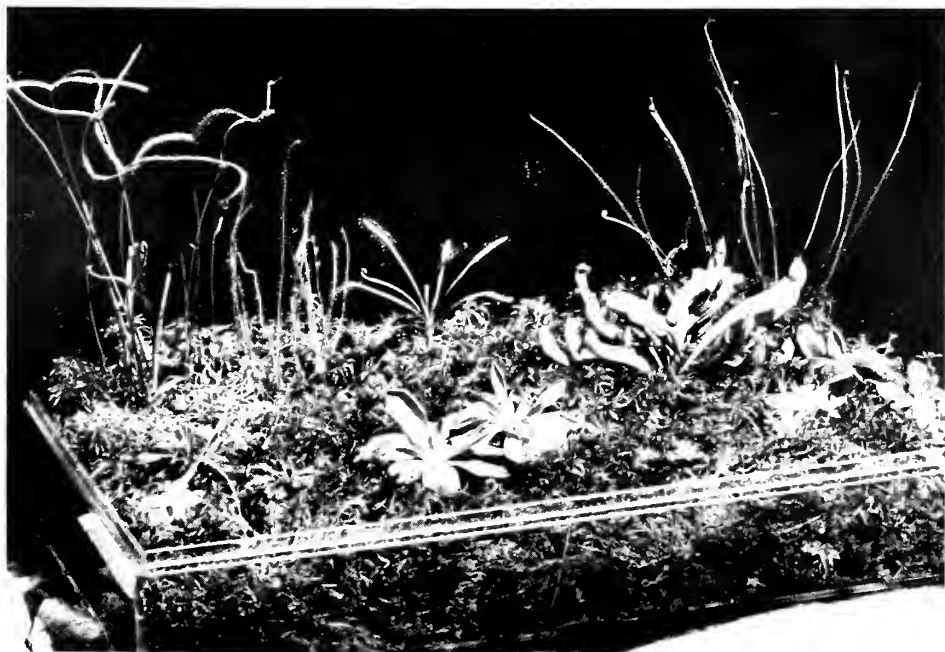
HARRIET M. PURTELL(7775 N. River Road, Milwaukee, Wisconsin 53217) writes: I thought that it might be of some interest to you for your C.P. Newsletter to learn that the Garden Club of America and the Chicago Horticultural Society recognized horticultural efforts with Carnivorous Plants this summer. I was fortunate to win two awards at the Garden Club of America "Show of Summer" in Glencoe, Illinois this July. I showed eight *Drosera* species growing singly in pots in a class which required showing plants all in the same family. All exhibits had to have

been owned for more than six months. My exhibit included: *Drosera prolifera*, *D. filiformis* and *D. capensis* from seed; *D. adelae* from root cutting; *D. badgerup* and *D. nitidula* purchased as vials of tissue culture from W.I.P.; and *D. waterii* and *D. intermedia* from leaf cuttings.

For this exhibit, I won a blue ribbon for the class and two special awards. The first award, the Corning Medal, has been available for approximately the last four years. A medal awarded by The Garden Club of America, it has only been given twice before this show. The second award was the Chicago Horticultural Society Award given for educational value and horticultural excellence.

In August of this year, there was a second Garden Club of America show in Milwaukee. In this show, I entered a terrarium of C.P.'s planted in live sphagnum moss. This was entered in a class titled "Creative Planting," to be judged for design and horticultural merit. The terrarium was planted with *Sarracenia psittacina*, *Pinguicula cyclosecta*, *P. kewensis*, *P. microphylla*, *P. moranensis*, *P. lucitonica*, *Drosera binata*, *D. capensis* and *D. filiformis* from seed, *D. montana* and *D. nitidula* from W.I.P. tissue culture, and *D. waterii* from leaf cutting.

This exhibit won a blue ribbon in its class and a second Chicago Horticultural Society award. It also won a second Corn-



Harriet Purtell's award-winning CP exhibit.

Key to terrarium:

Drosera binata

Drosera capensis

Drosera filiformis

Drosera filiformis

Drosera × *watari*

Pinguicula
moranensis

Pinguicula macrophylla
Pinguicula moranensis
Pinguicula cyclosecta

Drosera montana

Pinguicula kewensis

Pinguicula lusitanica

Drosera nitidula

ing Medal which makes the first time anyone has won this medal twice. The first two Corning medals were won by members of east coast garden clubs.

Should you wish further information, I suggest you contact Mrs. Edward K. Poor, 395 Cedar Street, Winnetka, Illinois 60093 (telephone no. [312] 446-2898). Mrs. Poor is a Director of The Garden Club of America and a horticultural judge. She is the past Chairman of the Horticulture Committee. You might also like to contact Mrs. Frederick Vogel, III, 1805 W. Bradley Road, Milwaukee, Wisconsin 53217 (telephone no. [414] 352-4864). Mrs. Vogel was the Chairman of the Milwaukee show.

From RICHARD TILBROOKE (65 8th Ave., St. Peters, South Australia, 5069 Australia): I have recently returned from England where I took part in a student

exchange scheme through Australia British Society.

Whilst there I contacted the secretary of the British Carnivorous Plant Society, who put me in touch with Paul Temple. Paul has been the society's liaison officer for some time and is always glad to assist, particularly those of us with the same interest in CPs. It was his help alone that enabled me to attend one of the London meetings.

There I met most of the committee members, who also had a tremendous interest for Australian CPs. Incidentally, due to my presence, the meeting ended with a discussion on tuberous *Drosera* to which I was able to contribute.

I would like to take this opportunity to thank the society for its wonderful hospitality. I feel sure that fellow CP enthusiasts would receive the same generous welcome if able to attend any of the meetings while traveling abroad.

SPOROTRICHOSIS: A Disease Hazard for Nurserymen

Nursery workers and tree planters should be aware of possible exposure to a potentially serious fungus disease sometimes contracted by those working with trees packed in sphagnum moss. This disease, called sporotrichosis, is a lymphatic disease in man and animals and is caused by the fungus *Sporotrichum schenckii*. This fungus has been found in soil, on flowers and shrubs, and even on wooden mine props. It is also associated with the sphagnum moss used to keep tree roots moist during shipment and storage.

Sporotrichosis most often affects gardeners, nursery personnel, and tree planter. Workers may contract the fungus from soil as well as from contaminated moss. How or when the moss becomes contaminated is not clear. Attempts to isolate the fungus directly from sphagnum bogs have usually failed, but *S. schenckii* has been recovered from bales of

"Foresters and nurserymen planting trees packed in sphagnum moss should be aware of this fungus disease present in moss in some areas."

moss newly arrived at a nursery site (D'Allessio *et al.* 1965). The fungus seems to increase in the moistness of most packing sheds. In one case, the mixture of soil and sphagnum remaining in the shed may have served as a reservoir for the fungus the following year (McDonough *et al.* 1970).

The fungus is found throughout the United States but it appears to be most common in the Midwest, especially in Wisconsin. Several outbreaks in other states have been traced to sphagnum moss shipped from Wisconsin (D'Allessio

et al., 1965). Because of periodic outbreaks of sporotrichosis, the state forest tree nurseries in Wisconsin no longer use sphagnum moss for packing seedlings. Several workers in the USDA Forest Service nursery in Michigan also contracted sporotrichosis and that nursery also discontinued the use of sphagnum moss. No cases of sporotrichosis have occurred at any of these nurseries since they stopped using sphagnum moss as packing material.

Infection occurs when the spores of the fungus are introduced through a small abrasion or scratch in the skin. In one to four weeks, a small painless blister develops at the entry point. This blister becomes inflamed, and slowly enlarges. Other areas may become infected as the fungus spreads through the lymph vessels. Nodules may form along the infected lymph channels, and the lymph glands in the armpit or elbow may become enlarged and sore. If untreated, the disease progresses slowly to the bones, abdominal organs, and uninvolved skin. But diagnosed early, the disease can be adequately treated and is rarely fatal (D'Alessio *et al.* 1965).

A PERSONAL CASE HISTORY

I contracted sporotrichosis several years ago while planting seedlings that had been packed in sphagnum moss. A small blister appeared on my wrist about three weeks after I had worked with the moss. This blister broke open in a few days but did not heal.

Within the next two weeks, the resulting sore enlarged and my wrist became tender. A few days later I noticed a red streak spreading from the infected area towards my elbow. At this point, I had visions of blood poisoning and quickly headed for my family physician. He prescribed antibiotics, but unfortunately they are not effective against fungus diseases. A week later my symptoms were more severe with greater pain throughout my entire arm.

I then went to another physician who also had difficulty diagnosing the problem. Later that same day a colleague in

forest disease research suggested the possibility of sporotrichosis. He had seen a flyer on this disease put out by the Forest Service a few months earlier. Armed with this flyer, I returned to my physician and between the two of us we were able to isolate the fungus on Sabouraud's agar from the open ulcer.

At this point I began the treatment for sporotrichosis, which is potassium iodine taken orally several times a day. My lesion healed in about two months but I continued taking potassium iodine for three months after healing. This treatment, while cheap and effective, may cause some discomfort. I endured a perpetual upset stomach while taking potassium iodine and still have some stomach problems today as a result of this treatment. But not all patients have such problems.

Other than the possible side effects of the treatments, the biggest problem with sporotrichosis is delayed diagnosis. Many physicians are not familiar with this disease. In my case, after we had isolated the fungus from the open lesion, my physician sent me to a prominent skin specialist in Minneapolis to confirm our diagnosis. This specialist and his colleague both stated that I did *not* have sporotrichosis. Nevertheless, my physician and I continued the treatment and later the Minnesota State Health Department confirmed our diagnosis.

PREVENTIVE MEDICINE

One way to avoid sporotrichosis is to not handle trees that are packed in sphagnum moss (this is my policy). If you must work with such trees, be careful: wash your hands frequently and treat lacerations and abrasions promptly. Nursery workers and tree planters who develop sores that do not heal properly should promptly seek medical attention and tell their doctors about the possibility of sporotrichosis.

LITERATURE CITED

- D'Alessio, D.J. and L.J. Leavens, G.B. Strumpf and C.D. Smith. 1965. An outbreak of sporotrichosis in Vermont associated with

(Continued on page 22)

Three *Nepenthes* from the Padang Highlands

Roger G. Shivas, Botany Department, University of New England,
Armidale, 2351, New South Wales, Australia

The Padang Highlands are situated near the equator in West Sumatra. The principal town in this region is Bukittinggi which is nestled between the two mountains, Mt. Merapi (2,891 m) and Mt. Singgalang (2,671 m). Much of the Padang Highlands are covered in rice fields although the higher mountainous regions are concealed in lush tropical rainforest.

There are unmarked walking tracks to the summits of both Mt. Merapi and Mt. Singgalang. These tracks are extremely steep and treacherous, particularly after rain. The ascent and descent of each mountain requires a full day's steady scramble. During April 1983 an expedi-

tion to the summits of Mt. Merapi and Mt. Singgalang was undertaken. Three species of *Nepenthes*, *Nepenthes bongso* Korth., *Nepenthes gymnamphora* Nees and *Nepenthes singalana* Becc. were observed and photographed.

Mt. Merapi was an active volcano that last erupted in 1926. The summit of the mountain is devoid of vegetation and covered in pumice stone and solidified lava. A strong odour of sulphur permeates the air near the summit.

An ericaceous forest begins at about 2,500 m on Mt. Merapi. In the gulleys at 2,600 m several plants of *Nepenthes bongso* (Continued on page 12)

Byblis liniflora

Bruce Pierson
(P.O. Box 179, Albion Park, NSW
2527 Australia)

This annual species proves very easy in cultivation. It is easily grown from seed, however the seed needs a resting period before sowing, and it will not germinate if the temperature is too low. Seed harvested in late autumn, should be stored in the fridge until early spring, when it can be sown on a mixture of 2 parts peat to 1 part sand.

I find a 100 mm pot adequate to accommodate 6-8 plants, and I prefer to grow this many to a pot; they tend to support each other, as they develop quite a long stem in their growing season. Without support, they tend to trail over other pots, and make a nuisance of themselves.

Watering is easy, using a water tray, with a depth of water of around 26 mm. A sunny location, with a little shade, seems to suit this species very well. In

(Continued on page 27)



Byblis liniflora



Mt. Singgalang in the Padang Highlands.



Mt. Merapi with Bukittinggi in the foreground.



Fruits of *Nepenthes bongso*.

were found. The lower pitchers were dark red and similar to those of *Nepenthes sanguinea* Lindl. which is found in Peninsular Malaysia (Shivas, 1983). However, *Nepenthes bongso* had a distinct toothed inner margin on the peristome. Furthermore, *Nepenthes bongso* had a characteristic dense indumentum in the leaf axils. One lower pitcher was observed to have a spur on the under side of the lid at the base. According to Danser (1928) *Nepenthes bongso* is similar to *Nepenthes pectinata* Dans. However, the plants observed on Mt. Merapi did not have the ellipsoidal pitchers characteristic of the rosettes of *Nepenthes pectinata* and *Nepenthes gymnamphora*.

On Mt. Singgalang two species of *Nepenthes* were observed. At about 1,600 m *Nepenthes gymnamphora* was found growing along a ridge in dense rainforest. Lower pitchers were clustered on short shoots attached to lengthy vines. The vines of *Nepenthes gymnamphora* extended for up to 10 m to the uppermost canopy of the rainforest.

At the summit of Mt. Singgalang there is a crater lake that is about 100 m in diameter. Around this lake is a dense moss forest. In this moss forest *Nepenthes singalana* grew abundantly. *Nepenthes singalana* was described by Beccari in 1886 from specimens collected from Mt. Singgalang. His illustration of *Nepenthes singalana* typified the plants that we found at the summit of Mt. Singgalang. Although this species is also reminiscent of *Nepenthes sanguinea*, the pitchers of *Nepenthes singalana* have a distinctly ribbed peristome and almost horizontal mouth.

Seed of the three species *Nepenthes bongso*, *Nepenthes gymnamphora* and *Nepenthes singalana* was collected and has germinated successfully.

Danser, B.H. (1928) The Nepenthaceae of the Netherlands Indies. *Bulletin du Jardin Botanique*, Serie 3(9).

Shivas, R.G. (1983) *Nepenthes* of Gunung Ulu Kali. *Carnivorous Plant Newsletter*, 12(3): 65-67.

(All photos accompanying article by Roger Shivas.)



Upper pitcher of *Nepenthes singalana*.



Lower pitcher of *Nepenthes bongso*.



Rosette plants of *Nepenthes gymnamphora*.



Vine and plantlet of *Nepenthes singalana*.



Lower pitchers of *Nepenthes tobaica*.

Photos by Roger Shivas

The Lake Toba *Nepenthes*

Roger G. Shivas, Botany Department, University of New England,
Armidale, 2351, New South Wales, Australia

Lake Toba is situated in Central Sumatra. This lake is the largest in South East Asia, covering an area of over 800 sq km. Along part of the northern shore of Lake Toba runs the trans Sumatra highway. The town of Prapat is the principal lakeside resort. Lake Toba lies 900 m above sea level and is one of the major tourist attractions in Sumatra.

In 1928 Danser described and illustrated *Nepenthes tobaica* from specimens collected on the plateau around Lake Toba.

In April, 1983 this species was observed and photographed along the roadside both east and west of Prapat. Many plants were coming into flower although mature fruits had not yet developed. The vivid red colour of the lower side of the lid meant that plants which grew on embank-

ments were easily observed from the road.

Danser, B.H. (1928) The Nepenthaceae of the Netherlands Indies. *Bulletin du Jardin Botanique*, Serie 3(9): 382-384.

A Note on pp. 17-22:

In response to a News and Views item by Dana Craig (CPN 9,4:89), one of our Japanese members, Yasuhiro Fukatsu (49, Ohkan-dori, Hacchocho, Okazaki-City, Aichi-Pref. 444, Japan) has translated into English the photo captions of several Japanese books.

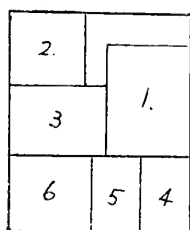
Included in this issue are translations for *Insectivorous Plants* by I.P.S.J. and *Carnivorous Plants, Observation & Cultivation* by S. Komiya. (Non-Japanese-reading ICPS members who own these books will appreciate Mr. Fukatsu's contribution.)



The trans Sumatran highway skirting Lake Toba.

INSECTIVOROUS PLANTS by I.P.S.J.

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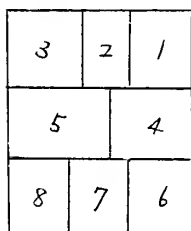
ムシトリスミレ

1. ムシトリスミレ
(谷川岳)
2. コウシンソウ
3. コウシンソウの群生
4. アルピナ
5. ヒルティフロラ
6. バリスネリーフォリア

The Butterworts (*Pinguicula*)

- P. vulgaris* in habitat
—Mt. Tanigawadake
- P. ramosa*
A clump of *P. ramosa*
- P. alpina*
- P. hirtiflora*
- P. vallisneriifolia*

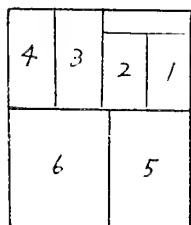
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1. グランティフロラ
2. フミラ
3. イオンantha
4. ヒメムシトリスミレ
5. フラニフォリア
6. リラキナ
7. キハフツコラ
8. コリメンシス

- P. grandiflora*
- P. pumila*
- P. ionantha*
- P. lusitanica*
- P. planifolia*
- P. lilacina*
- P. gypsicola*
- P. colimensis*

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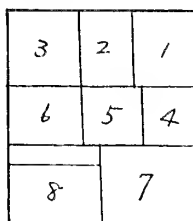
ミミカキグサ

1. レニフォルミス
2. アルピナ
3. ミミカキグサ
4. ホザキミミカキグサ
5. ヒメミミカキグサ
6. ロングフォリア

The Bladderworts (*Utricularia*) Terrestrial

- U. reniformis*
- U. alpina*
- U. bifida*
- U. racemosa*
- U. minutissima*
- U. longifolia*

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1. カリキフィタ
2. ダイコトマ
3. メンチエジー
4. スピラリス=マクラタ
5. イチョウバミミカキグサ
6. マルバミミカキグサ
7. アミミミカキグサ
8. ポリポフフィックス
ムルティフィタ

- U. calycifida*
- U. dichotoma*
- U. menziesii*
- U. spiralis* var. *maculata*
- U. livida*
- U. striatula*
- U. reticulata*
- Polypompholyx multifida*

2	
3	/
5	4

タヌキモ

1. タヌキモ
2. コタヌキモ
3. / タヌキモ
4. ラディアータの群生
5. ラディアータ

The Bladderworts (aquatic)

- U. vulgaris*
U. intermedia
U. aurea
A mass of *U. radiata*
U. radiata

2	/
4	3

1. ヒメタヌキモ
2. インフラタ
- 3.4. ムジナモ

- U. minor*
U. inflata
Aldrovanda vesiculosa

4		/
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6		2
8	7	3

モウセンゴケ

1. モウセンゴケ
2. ビグミ-モウセンゴケ
3. フォルケルラ
4. コモウセンゴケ(関東型)
5. カビラリス
6. アリキアエ
- 7.8. イトモウセンゴケ

The Sundews (*Drosera*)

- D. rotundifolia*
D. pygmaea
D. pulchella
D. spathulata (Kanto)
D. capillaris
D. aliciae
D. filiformis

7	5	/
		2
		3
8	6	4

1. コモウセンゴケ(関西型)
2. アリカサハモウセンゴケ
3. ネオカレドニア
4. クルマバモウセンゴケ
5. ナガバノモウセンゴケ
6. ウィットakerii
7. ヨソマタモウセンゴケ
8. ギガントア

- D. spathulata* (Kansai)
D. capensis
D. neocaledonica
D. burmanii
D. anglica
D. whittakerii
D. binata var. *dichotoma*
D. gigantea

2		/
4		
5		3

- 1.2. ハエトリグサ

- Dionea muscipula*
(The Venus' Flytrap)

- サラセニア
3.4. レウコフィラ
5. 自然交配種

- Sarracenia*
S. leucophylla
A natural hybrid

page 11

3	2	1
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- | | | |
|------|--------|----------------------|
| 1.2. | フラバ | <i>S. flava</i> |
| 3. | フォルポレア | <i>S. purpurea</i> |
| 4.5. | アラータ | <i>S. alata</i> |
| 6. | ミノール | <i>S. minor</i> |
| 7.8. | ポシタシナ | <i>S. psittacina</i> |

page 12

3	2	1
6	4	5

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|--------|----------|---------------------------------|
| | ヘリアンフォラ | Heliamphora |
| 1. | ヌタンスの花 | The flower of <i>H. nutans</i> |
| 2. | ヘテロドクサ | <i>H. heterodoxa</i> |
| 3. | ミノール | <i>H. minor</i> |
| 4.5.6. | ダーリントンニア | <i>Darlingtonia californica</i> |

page 13

3	2	1
5	4	

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|--------|---------|---------------------------------|
| | ドロソフィラム | |
| 1.2. | | <i>Drosophyllum lusitanicum</i> |
| 3.4.5. | セファロトス | <i>Cephalotus follicularis</i> |

page 14

3	2	1
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10	9	8
7		

- | | | |
|------|-----------------|--|
| | ウツボカズラ | Nepenthes |
| 1. | マダガスカルエニシス | <i>N. madagascariensis</i> |
| 2.8. | アンフルリア | <i>N. ampullaria</i> |
| 3. | ブルケイの雌花 | The female flowers of <i>N. burkei</i> |
| 4. | グラシリス | <i>N. gracilis</i> |
| 5. | サンギネア | <i>N. sanguinea</i> |
| 6. | ビローラの雄花 | The male flowers of <i>N. villosa</i> |
| 7. | ミラビリス | <i>N. mirabilis</i> |
| 9. | ラフレシアの
上につく袋 | The upper pitcher of <i>N. rafflesiana</i> |
| 10. | 下につく袋 | The lower pitcher of <i>N. rafflesiana</i> |

page 15

4	3	2	1
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12	11	10	9

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|----|-----------|-------------------------|
| 1. | ブルケイ | <i>N. burkei</i> |
| 2. | ベトリコーサ | <i>N. ventricosa</i> |
| 3. | マキシマ | <i>N. maxma</i> |
| 4. | アラータ | <i>N. alata</i> |
| 5. | アルボマルギナータ | <i>N. albomarginata</i> |

4	3	2	1
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12	11	10	9

6. ビカルカラータ *N. bicalcarata*
7. メリリアータ *N. merrilliana*
8. ローウィー *N. lowii*
9. テンタクラータ *N. tentaculata*
10. ガンギネア *N. sanguinea*
- 11.12. The lower pitcher (left) and the upper pitcher (right) of *N. macfarlanei*
マクファーレーンの
下につく袋(左)と
上につく袋(右)

3	1
4	2

- ビブリス *Byblis*
1. ヤガクテア *B. gigantea*
2. リニフロラ *B. liniflora*
- ロリスラ *Roridula*
- 3.4. ゴルゴニアス *R. gorgonias*

Roridula gorgonias and *Roridula dentata* were taken off CP by Dr. Lloyd, for they do not have digestive enzymes. Japanese horticulturists, however, regard *Roridula* as CP. Unfortunately, these interesting species are scarcely propagated.

観察と栽培 食虫植物図鑑

CARNIVOROUS PLANTS, OBSERVATION & CULTIVATION by S. Komiya

- ムシトリスミレ
P. vulgaris

2	1	
5	4	3
7	6	

1. モウセンゴケの群落 A cluster of *D. rotundifolia*
2. コウセンゴケの自生地 *D. spathulata* in habitat
3. セグミ-モウセンゴケ *D. pugmacea*
4. ヨツマタモウセンゴケ *D. binata* var. *dichotoma*
5. オーストラリアの…… Australian tuberous sundews
6. 虫をつかまえた…… A leaf of *D. indica* catching insects
7. インモチソウ *D. pelettata*

page 3

2		1
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7	6	5

1. ドロソフィラム *Drosophyllum lusitanicum*
2. ナカバノイシモチソウ *D. indica*
3. ドロセウ・ウィッタケリ *D. whittakerii*
4. 虫とらえた... A leaf of *P. vulgaris* catching an insect
5. ヒュウリス・リニフロラ *Byblis liniflora*
6. ロリス・ゴルゴニウス *Roridula gorgonias*
7. ショウラム・ゴリス *P. gypsicola*

page 4

3	2	1
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1. コウシンソウ *P. ramosa*
2. ピンギョウ・ヒルタフロウ *P. hirtiflora*
3. ピンギョウ・カエルアサ... A malformed flower of *P. caerulea*
4. ピンギョウ・リウキナ *P. lilacina*
5. アシナガムシトリスミレ A horticultural variant of
P. moranensis (syn. *P. caudata*)

This is a moderately propagated one.
We call it "Ashi-naga-mushitorisumire," which means the pinguicula with a long spur. "Ashi-naga-mu." has larger leaves and corollas than *P. moranensis* in Mexico. It is confirmed that the latter is a diploid ($2n=22$), while the former is a tetraploid ($2n=44$).

- 6.7. ムシナモ *Aldrovanda vesiculosa*

page 5

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9	8	5	

1. ハエトリグサ *Dionaea muscipula*
2. ユタキモの自生状況 *U. vulgaris* in habitat
3. ユタキモ *U. intermedia*
4. ノタキモの花 The flower of *U. aurea*
5. オバナトタキモ *U. gibba*
6. ヒメミカゲサ *U. minutissima*
7. ミミカゲサ *U. bifida*
8. ウトリクサリア・ロングフォリア *U. longifolia*
9. マルバミミカゲサ *U. striatula*

page 6

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1. ウトリギリアリ・レ・フォルミズ *U. reniformis*
2. ウトリギリアリ・アルピナ *U. alpina*
3. ウトリギリアリ・ラディアタ *U. radiata*
4. ウトリギリアリ・リビダ *U. livida*
5. ポリポンホリクス・ムルティファ *Polypompholyx multifida*
6. ネペンテス・アンブユリア *N. ampullaria*
7. ネペンテス・ミラビリス *N. mirabilis*

page 7

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1. サラセニア交配種 *Sarracenia hybrid*
2. ネペンテス・アンブユリアの南産 *A pitcher of N. ampullaria*
3. ネペンテス・アルボマルギナタ *N. albomarginata*
4. ネペンテス・ヒロサの南産 *A pitcher of N. villosa*
5. ネペンテス・ベントロシカ *A pitcher of N. ventricosa*
6. ネペンテス・マッファランセーの上部 *The upper pitcher of N. macfarlanei*
7. ネペンテス・マッファランセーの下部 *The lower pitcher of N. macfarlanei*

page 8

2	1	
4	3	
6	5	

1. サラセニア・アラタの花 *A flower of S. alata*
2. ヘリアンファラ・ミニョーレ *Heliamphora minor*
3. ヘリアンファラ・ヌタンスの花 *A flower of H. nutans*
4. ヘリアンファラ・ヌタンス *H. nutans*
5. フクロコキリシタの花 *An inflorescence of Cephalotus*
6. フクロコキリシタ *Cephalotus follicularis*

Sporotrichosis (from p. 8)

sphagnum moss as the source of infection.
New England Jour. of Medicine. 272: 1054-1058.

McDonough, E.S., A.L. Lewis and M.Meister.
1970. Sporothrix (Sporotrichum) schenckii
in a nursery barn containing sphagnum.
Public Health Reports, Public Health Ser.,
U.S. Dept. of Health, Education and Wel-
fare 85(7): 579-585.

Thanks to Bill Netherby
for sending this article which
originally appeared in
American Horticulturist.

Prepared by Darroll D. Skilling, principal plant
pathologist, North Carolina Forest Experiment Station,
1992 Folwell Avenue, St. Paul, MN 55108.

THE 1984 LIST OF CP BOOKS

Not available through CPN. Order directly from publisher or your local bookshop.

* = books intended primarily for children.

1. Carnivorous Plants, Gordon Cheers, Globe Press, Melbourne, \$7.95
2. Insectivorous Plants, Charles Darwin, AMS Press, 1893, 56 E. 13th St., N.Y., NY 10003, \$27.50. 1893 ed.
3. *Plants that Eat Insects: A Look At Carnivorous Plants, Anabel Dean, Lerner Publications, 1977, 241 First Avenue, Minneapolis, MN 55401. \$5.95
4. Plants of Prey in Australia, Rica Erickson, Univ. of W.A. Press, 1968, World Insectivorous Plants, 2130 Meadowind Ln., Marietta, GA 30062, Cloth, \$15.00.
5. *Animals & Plants That Trap, Phillip Goldstein, Holiday, 1974, Holiday House, Inc., 18 E. 53rd St., N.Y., NY 10022, \$5.95.
6. Nepenthes of Mt. Kinabalu (in English), Kurata. S., Sabah National Park, World Insectivorous Plants, 2130 Meadowind Ln., Marietta, GA 30062, \$7.00.
7. *Pitcher Plants, Carol Lerner, William Morrow & Co., N.Y. \$11.00.
8. Carnivorous Plants, Francis E. Lloyd, Peter Smith, 6 Lexington Ave., Magnolia, MA 01930, \$12.00, 1942 ed.
9. The World of Carnivorous Plants, J. and P. Pietropaolo, R.J. Stoneridge, Peter Paul Nurseries, 1974, \$6.30.
10. *Insect-Eating Plants, L. and G. Poole, T.Y. Crowell, 1963, 666 Fifth Avenue, N.Y., NY 10003, \$4.50.
11. *Plants That Eat Animals, J.H. Prince, Thomas Nelson, 1978, 407 Ave. S., Nashville, TN 37203, \$8.95, 1979 ed.
12. CP of the U.S. and Canada, D.E. Schnell, John F. Blair, Publisher, 1976, 1406 Plaza Dr., SW, Winston-Salem, NC 27103, \$19.95 plus shipping, 1976 ed.
13. Carnivorous Plants, Randall Schwartz, Avon Books, 1975, 959 Eighth Ave., N.Y., NY 10019, soft cover \$1.25.
14. Pitcher Plants of Peninsular Malaysia & Singapore, Roger G. Shivas, Maruzen Asia Pte. Ltd., 51 Ayer Rajah Crescent #07-09, Singapore 0513. \$9.80.
15. Carnivorous Plants, Adrian Slack, MIT Press, 1979, 28 Carleton St., Cambridge, MA 02142, \$25.00, 1980 ed.
16. Cultivating Carnivorous Plants, Allen Swenson, Doubleday & Co., 1977. Garden City, NY 11535, \$7.95.
17. *Carnivorous Plants, John F. Waters, Franklin Watts, Inc., 1974, 845 Third Avenue, N.Y., NY 10022, \$4.90.
18. *Carnivorous Plants, Cynthia Overbeck, Lerner Publications, 1981, 241 First Avenue, Minneapolis, MN 55401, \$8.95.
19. *Secrets of the Venus's Fly Trap, Jerome Wexler, Dodd, Mead & Co., 1981, 79 Madison Ave., N.Y., NY 10016, \$8.95.

SPECIAL NOTICE

Carnivorous Plants, by Gordon Cheers (see review of book in this issue) can be ordered on a one time basis from Joe Mazrimas who arranged to have a large shipment sent by the author to the U.S.A. ICPS members who wish to order this book should send a check for \$7.95 payable to Joe Mazrimas (address inside front cover) and the book will be sent by surface mail. Foreign subscribers should send a bank draft drawn on a U.S. Corpo-

ration fund. The price includes all shipping and mailing costs. The profit made by this sale will go into the ICPS treasury to cover publication costs of the Newsletter.

For those individuals who wish to order the book directly from the author, write to:

Gordon Cheers
P.O. Box 78, Diamond Creek
Victoria 3089 AUSTRALIA

Add \$1.00 for surface mail.

1984 CP SOURCES

Note: All individuals or organizations selling, trading or buying CP are advised to be cognizant of certain restrictions under the U.S. ESA and international CITES for certain species (see editorial, CPN 12 3, 1983).

Name and Address	Catalog Price	Stock
Carnivorous Gardens P.O. Box 224 Stones Corner 4120 Brisbane, Queensland Australia	\$.75	<i>Native seed</i>
Carolina Exotic Gardens P.O.Box 1492 Greenville, NC 27834	\$1.00	<i>Dionaea, Drosera, Sarracenia, Darlingtonia, Pinguicula, Nepenthes & CP seeds, Sphagnum moss</i>
Chatham Botanical P.O. Box 691 Carrboro, NC 27510 Telephone (919) 929-2003	\$.50	<i>Pinguicula, Drosera, Dionaea, Cephalotus — tissue culture, other tissue cultured CP — inquire, Byblis</i>
Country Hills Greenhouse Rt. 2 Corning, OH 43730	\$2.50 refundable with order	<i>Nepenthes (20 varieties)</i>
Exoticana Seeds P.O. Box 184 Greytown 3500, South Africa		<i>Native CP seed</i>
Hinode-Kadan Nursery 2735 Nakanogo, Hachijot Hachijyo-Island Tokyo 100-16 Japan	International Reply Coupon	<i>Byblis, Cephalotus, Drosera, Pinguicula, Nepenthes, Utricularia</i>
Hungry Plants 1216 Cooper Drive Raleigh, NC 27607	\$.50	<i>Byblis, Cephalotus, Dionaea, Drosera, Darlingtonia, Nepenthes, Pinguicula, Roridula, Sarracenia, Sphagnum and Utricularia. Tissue cultures of most stock.</i>
Lee's Botanical Garden P.O. Box 7026 Ocala, FL 32672	Free	<i>Sarracenia, Utricularia, Pinguicula, Nepenthes, Drosera, Dionaea, Heliamphoras, seed.</i>
Marston Exotics Spring Gardens Frome Somerset, England	50 p	<i>Serving Britain & Europe only</i>
Milingimbi Nursery World of CP P.O. Box 5 Seaforth, NSW, Australia 2092	Free	<i>Byblis, Cephalotus, Drosera, Dionaea, Nepenthes, Utricularia, Sarracenia, Pinguicula</i>

Orgel's Orchids Rt. 2, Box 90 Miami, FL 33187	Free	<i>Byblis, Kionaea, Drosera, Nepenthes, Pinguicula, Sarracenia, Utricularia</i>
Peter Pauls Nurseries Canandaigua, NY 14424	\$.50	<i>Sarracenia, Dionaea, Drosera, Utricularia, Darlingtonia, Nepenthes seed, Pinguicula, live Sphagnum</i>
Plant Shop's Botanical Garden 18007 Topham St. Reseda, CA 91335	\$2.00 refundable with order	<i>Drosera, Byblis liniflora, Pinguicula, Sarracenia, Nepenthes, Cephalotus, Dionaea, Utricularia</i>
Robert Cantley P.O. Box 1200 B.S.B. Brunei, Borneo SE Asia	Free	<i>Nepenthes</i>
Renate Parsley 8 Langton Rd. Mowbray 7700 South Africa		<i>Native CP seed</i>
Thysanotus-Seed-Mailorder Postfach 44-8109 2800 Bremen 44 West Germany	Inquire	<i>Byblis, Darlingtonia, Dionaea, Drosera, Drosophyllum, Nepenthes, Pinguicula, Sarracenia, Utricularia</i>
W.T. Neale & Co., Ltd., B.M. & S. Lamb 16/18 Franklin Rd. Worthing, Sussex, BN132PQ England	inquire	<i>Sarracenia, Dionaea, Darlingtonia seed</i>
World Insectivorous Plants 2130 Meadowind Ln. Marietta, GA 30062	\$.50	<i>Dionaea, Drosera, Drosophyllum, Nepenthes, Sarracenia, Pinguicula, Byblis liniflora, Utricularia</i>

Nurseries in Great Britain (sent in by Christopher Hynes):

Heldon Nurseries Asbourne Rd. Spath Utttoxeter ST145AD	Sarracenia Nurseries Links Side Courtland Ave. Mill Hill, London NW7
Cyril G. Brown 65 Highfield Cres. Hornchurch Essex RM126PX	South West Seeds Doug & Vivi Rowland 200 Spring Rd. Kempston, Bedford MK428ND

The co-editors and CPN do not endorse any of the above vendors. This is being provided only as a service to our subscribers. Information correct at time of receipt. Please contact sources directly for further information. Not responsible for omissions. Inquiries for inclusion in future lists should include a catalog/price list of CP available, cost of catalog and address. Send information to J.A. Mazrimas, 329 Helen Way, Livermore, CA 94550.

ICPS Membership Directory

Plans are underway to publish a membership directory of everyone who has joined ICPS since 1982. *If you do not wish your name and address included*, please notify Pat Hansen, 3321 Hamell Road, Fullerton, CA 92635.

Review of Recent Literature

Gowda, D.C., G. Reuter & R. Schauer. Structural studies of an acidic polysaccharide from the mucin secreted by *Drosera capensis*. Carbohydr. Res. 113(1): 113-124, 1983.

The mucin secreted by *Drosera capensis* is composed of a polymer of arabinose, xylose, galactose, mannose and glucuronic acid. The polymer has a backbone consisting of an alternating glucuronic and mannose residues as the repeating unit. Arabinose and xylose are attached to the glucuronic acid while galactose is attached to the mannose residues.

Larsen, James A. 1982. Ecology of the northern lowland bogs and conifer forests. Academic Press, New York. 307 p. While CP are only mentioned peripherally in this general ecologic work covering the bogs of the Great Lakes area primarily, the work is a very nice summary of various facets of the bogslands with particular concentration on species communities, nutrition and mineral relationships, sclerophylly and arguments of whether or not climax communities exist in these areas and if mesic forest is truly the ultimate natural fate of the area. The author writes with a particularly engaging style, expressing a love of the boglands throughout the scholarly work.

DES

Patterson, C.G. & C.J. Cameron. Seasonal dynamics and ecological strategies of the pitcher plant chironomid, *Metriocnemus knabi*, in southeast New Brunswick (Canada). Can. J. Zool. 60(12): 3075-3083. 1982.

Female chironomids in spring oviposit into *Sarracenia purpurea* pitchers which produces a generation emerging in August. The progeny of the August emergence develop in the new summer pitchers and don't emerge until the following July.

Schnell, D.E. 1983. Notes on the pollination of *Sarracenia flava* L. (Sarraceniaceae) in the piedmont province of North Carolina. Rhodora 85:405-420. Detailed field studies over several flowering seasons indicate that *Bombus* spp. are the primary pollinators of *S. flava* in the province, supporting more casual observations made by the author several years previously in the coastal plain province. Smaller bees and *Apis* are at best occasional, accidental pollinators. Studies also indicated that the flowers of *S. flava* are not protandrous. There is also information on nectar output quantity and content, pollen weight output, etc. Depending on pollinator behavior, autogamy, geitonogamy and xenogamy are all possible. (Reprints: DE Schnell, Rt. 1, Box 145C, Pulaski, VA 24301).

Schwaegerle, K.E. 1983. Population growth of the pitcher plant, *Sarracenia purpurea* L., at Cranberry Bog, Licking County Ohio. Ohio J. Sci. 83:19-22. Incidental to construction of Buckeye Lake in Ohio, a sphagnum bog was accidentally(!) created. In 1912, a solitary specimen of *S. purpurea* was planted. By 1921, this was observed to have grown to "hundreds of individuals". In the current study, the population is tabulated at 157,000 plants. Use of population increase formulas indicates that this level was actually reached in 1942 (just 30 years after one plant was placed). It is felt that this level is the maximum carrying capacity for this particular bog, although it would have been helpful to include the size of the bog and how much of it was open sphagnum mat and what percentage of plants was in that area. This study also showed that pitcher plants have a relatively slow rate of population increase for an herbaceous species.

DS

CPN BACK ISSUES

Photocopied reprints of Volumes 1-6 of CPN are available by sending prepaid orders to Pat Hansen, 3321 Hamell Road, Fullerton, CA 92635. Orders will be acknowledged but held until a sufficient number has accumulated to make the effort of photocopying worthwhile. Volumes 1-6 contain no color photos and were published in an 8½" x 11" format, stapled at the top. Prices are as follows: U.S. and Canada, \$10.00 per volume. Set of five or more, \$8.00 per volume. All other countries: \$15.00 per volume, \$13.00 per volume for five or more. *SPECIFY VOLUME NUMBERS PLEASE*. Sets of five or more may include any volumes 1-12.

Make checks payable to CSUF FOUNDATION — ICPS.

Byblis liniflora (Continued from p. 10)

order to obtain seed, it is necessary to tap all open flowers daily in order to allow the anthers to release their pollen onto the stigma. Cross pollination is unnecessary, as the flowers are self-fertile.

Seed may be collected when the seed capsules have turned brown, and just started to split. When grown in this manner, this plant is a really attractive species when in full flower, with several lilac flowers open at any one time on each plant.

WANT ADS

When submitting Want Ads, please be sure to print clearly for best results and to eliminate mistakes. Please circle the correct letter before each item (Want, Trade, Sell or Buy). Want ads are limited to carnivorous plants, terrariums, greenhouses and moss. There is a charge of ten cents per item, with no limit to the number of items you may submit per issue.

Send coin or check to:

Arboretum, Want Ads
California State University
Fullerton, CA 92634

BOOK REVIEW

Cheers, Gordon. 1983. Carnivorous Plants. Globe Press, 95 pages.

This book is written by Australian nurseryman Gordon Cheers who has been working with CP for some time now. Except for some scattered typo problems, the book is well produced with many excellent (photographed, plated and printed) color photos along with world range maps. The species presented for discussion are a well balanced, representative group—all genera are covered. An asset of the book is the emphasis on culture and propagation. The book is written for popular consumption, but plant descriptions are adequate. The book will have wide application and interest beyond Australia.

DES

Greg Harmison (7918 Briaridge, Dallas, TX 75248). (WB) any *Heliamphora* or *Drosera cistiflora*.

Johannes Marabini (Am Grundla 24, 8522 Herzogenaurach, West Germany). (Sell) Limited number of *Nepenthes maxima* seedlings. (Trade) *Nepenthes lowii* seedlings for *Nepenthes villosa*. (Want) *Nepenthes dubia*, *N. inermis*, *N. leptochila*, *N. pectinata*, *N. petiolata*.

Lee's Botanical Gardens (P.O. Box 7026, Ocala, Fla. 32672) (WTB) *Utricularia reniformis*, *U. endresii*, *U. alpina*, *U. dusenii*, *U. racemosa*, *U. violacea*. (T) *U. dichotoma*, *U. caerulea*, *U. livida*, *U. uliginosa*, *U. resupinata*, *U. monanthos*, many more.

Keith Shoesmith (32 Penda's Mead, Lindisfarne Way, Homerton E9 5PX, London, ENGLAND): *Nepenthes* and other CP for sale or trade. Write for list.

Note: All individuals or organizations selling, trading or buying CP are advised to be cognizant of certain restrictions under the U.S. ESA and international CITES for certain species (see editorial, CPN 12 3, 1983).

